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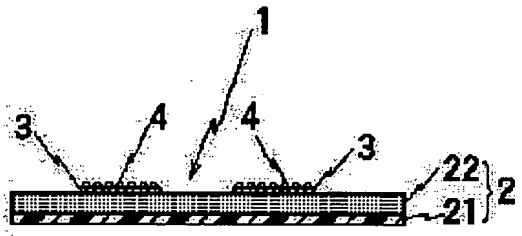
(54) DECORATIVE SHEET AND PRODUCTION THEREOF

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a semipermanently durable deodorizing effect by applying a powdery material having a photocatalyst function on the surface of a decorative sheet-form base material.
SOLUTION: A powdery material having a photocatalyst function is stuck on the surface of a sheet-form base material. As an example, a vinyl chloride resin layer 22 is formed on the surface of backing paper 21 for wall paper as the sheet-form base material 2. And it is generally called as vinyl wall paper. The sheet-form base material 2 is produced in the same way with the vinyl wall paper. A pasty sol material in which various kinds of additives such as plasticizer, stabilizer, color agent is applied on vinyl chloride resin to heat it for a gel and form the vinyl chloride resin layer 22. And a powdery material 4 having photocatalyst function is stuck on the surface of the vinyl chloride resin layer 22 through a fluororesin layer 3 formed as a pattern.



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CLAIMS

[Claim(s)]
[Claim 1] The ornament sheet which makes the fine particles which have a photocatalyst function come to adhere to the front face of a sheet-like base material.
[Claim 2] The ornament sheet according to claim 1 whose fine particles which have a photocatalyst function are titanium oxide which has optical activity.
[Claim 3] The ornament sheet according to claim 1 or 2 on which the fine particles which have a photocatalyst function are made to come to adhere through a fluororesin layer.
[Claim 4] The ornament sheet claim 1 - given in 3 any 1 terms on which the fine particles which have a photocatalyst function are made to come to adhere in the shape of a pattern.
[Claim 5] The manufacture approach of the ornament sheet characterized by carrying out the fixing unification of the fine particles while solidifying a liquefied object, after applying the liquefied object containing fluororesin to the front face of a sheet-like base material, sprinkling the fine particles which have a photocatalyst function before the liquefied object containing fluororesin solidifies, making it adhere to a liquefied object and removing excessive fine particles.

[Claim 6] The manufacture approach of the ornament sheet according to claim 5 which comes to add the vinyl chloride system resin for a paste, and/or acrylic resin in the liquefied object containing fluororesin.
[Claim 7] The manufacture approach of the ornament sheet according to claim 5 or 6 which comes to apply the liquefied object containing fluororesin in the shape of a pattern.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to an ornament sheet suitable as building interior material, such as a wallplate, head-lining material, and flooring, the interior material Sagitta seat mounting material for vehicles, furniture mounting material, etc., and its manufacture approach.
[0002]
[Description of the Prior Art] When giving the mildewproofing effectiveness and the deodorization effectiveness conventionally to the ornament sheet currently used as building interior material etc., adding a nitrogen-containing sulfur compound, a BAINAJIN compound, etc. in the synthetic-resin layer of the above-mentioned ornament sheet is performed. However, since a nitrogen-containing sulfur compound, a BAINAJIN compound, etc. deteriorate by the passage of time, the early mildewproofing effectiveness, the early deodorization effectiveness, etc. are unmaintainable over a long period of time.
[0003] On the other hand, the fine particles which have a photocatalyst function attract attention as what gives the mildewproofing effectiveness, the deodorization effectiveness, etc. This thing demonstrates the mildewproofing effectiveness, the deodorization effectiveness, etc. by disassembling the organic substance, such as mold and a stinking component, according to a photocatalyst operation.
[0004]
[Problem(s) to be Solved by the Invention] Since the fine particles which have the above-mentioned photocatalyst function are what disassembles the organic substance according to a photocatalyst operation, there is an advantage that the mildewproofing effectiveness, the deodorization effectiveness, etc. can be demonstrated semipermanently, like a nitrogen-containing sulfur compound or a BAINAJIN compound, without deteriorating by the passage of time. However, since even the synthetic resin which forms the synthetic-resin layer of an ornament sheet decomposes, it is impossible to add and use it into the synthetic-resin layer of an ornament sheet as mentioned above as a matter of fact. Therefore, although the fine particles which have a photocatalyst function have the advantage that the mildewproofing effectiveness, the deodorization effectiveness, etc. can be demonstrated semipermanently, the present condition is used only for products without the concern decomposed, such as a ceramic article.
[0005] The fine particles which have the photocatalyst function considered that this invention is unusable on the above ornament sheets in the former are applied to an ornament sheet, and it aims at offering the ornament sheet which gave the deodorization effectiveness maintained semipermanently, and its manufacture approach.
[0006]
[Means for Solving the Problem] The ornament sheet of this invention is characterized by making the fine particles which have a photocatalyst function come to adhere to the front face of a sheet-like base material. Moreover, it is characterized by carrying out the fixing unification of the fine particles while it solidifies a liquefied object after the manufacture approach of the ornament sheet of this invention sprinkles the fine particles which have a photocatalyst function, and it makes it adhere to a liquefied object and it removes excessive fine particles before it

applies the liquefied object containing fluororesin to the front face of a sheet-like base material and this liquefied object solidifies.

[0007] As a sheet-like base material used for the ornament sheet of this invention, if conventionally used as a base material of an ornament sheet or an ornament sheet, even if it is which thing, it can be used.

[0008] For example, if it is when using it as a wallplate or head-lining material Usually, papers currently used, such as a flameproof paper and nonflammable paper, natural animality or natural vegetable fiber, To a kind of inorganic [, such as a glass fiber, rock wool, pulp, and a synthetic fiber,] or organic fiber, or two sorts or more the synthetic-resin layer of foaming or not foaming is further shown in textiles, such as textile fabrics which come to mix bulking agents, resin binders, etc., such as a calcium carbonate, clay, and an aluminum hydroxide, if needed, knitted fabric, and a nonwoven fabric, or these front faces -- it is -- what was formed two or more layers can be used. In addition, this synthetic-resin layer may be formed in the shape of a pattern not only using what was formed all over front faces, such as papers and textiles, but using a rotary screen printer etc. Moreover, with means, such as the so-called chemical embossing method which used embossing which uses an embossing roll etc. for the front face of a synthetic-resin layer, and the ink containing a defoaming agent and/or a foaming accelerator, irregularity may be formed in a front face, usual ink may be used for a synthetic-resin layer front face, or papers and a textile front face, and a printing pattern may be formed in them.

[0009] The synthetic-resin laminating sheet which carried out two or more layer laminating of the synthetic-resin layer of the synthetic-resin sheet of foaming or not foaming, foaming, or not foaming in the case of flooring, Natural animality or vegetable fiber, a glass fiber, rock wool, pulp, The need is accepted at a kind of inorganic [, such as a synthetic fiber,] or organic fiber, or two sorts or more. A calcium carbonate, it is in a base material front face and/or rear faces, such as textile fabrics which come to mix bulking agents, resin binders, etc., such as clay and an aluminum hydroxide, knitted fabric, a nonwoven fabric, and paper, further about the synthetic-resin layer of foaming or not foaming -- it is -- what carried out two or more layer laminating can be used. An above-mentioned synthetic-resin sheet or an above-mentioned synthetic-resin layer carries out heating sticking by pressure of the chip made of thermoplastics, and may be obtained. Moreover, used the ink containing embossing, and the defoaming agent and/or the foaming accelerator using an embossing roll etc. With means, such as the so-called chemical embossing method, may form irregularity in a front face, and A printing pattern may be formed using usual ink and the paint film by a thing, an ultraviolet curing mold coating, etc. which formed further the transparence or the opaque antifriction layer which made transparence and/or an opaque coloring chip, inorganic fine particles, etc. contain if needed may be formed.

[0010] In the case of mounting material [the interior material Sagitta seat mounting material for vehicles or] for furniture The synthetic-resin laminating sheet which carried out two or more layer laminating of the synthetic-resin layer of the synthetic-resin sheet of foaming or not foaming, foaming, or not foaming, Natural animality or vegetable fiber, a glass fiber, rock wool, pulp, The need is accepted at a kind of inorganic [, such as a synthetic fiber,] or organic fiber, or two sorts or more. A calcium carbonate, it is further about the synthetic-resin layer of foaming of the textile fabrics which come to mix bulking agents, resin binders, etc., such as clay and an aluminum hydroxide, knitted fabric, a nonwoven fabric, etc., or not foaming -- it is -- what carried out two or more layer laminating, the thing which infiltrated synthetic resin into the above-mentioned textiles can be used. Moreover, irregularity may be formed in a front face with means which used the so-called chemical embossing method which used the ink containing embossing, and the defoaming agent and/or the foaming accelerator using an embossing roll etc., the release paper with **, etc., such as the so-called replica method, and a printing pattern may be formed using usual ink, and surface treatment aiming at gloss adjustment etc. may be performed.

[0011] It can be used even if it is which thing as the above-mentioned synthetic resin, if conventionally used as an ornament sheet. Specifically, thermosetting resin, such as thermoplastics and such mixture, such as vinyl chloride system resin, acrylic resin, urethane system resin, vinyl acetate system resin, styrene resin, polyester system resin, and olefin system

resin, phenol system resin, urea system resin, and melamine system resin, can be used.
[0012] As the above-mentioned vinyl chloride system resin, polyvinyl chloride and vinyl chloride-ethylene copolymerization resin, Vinyl chloride-vinyl acetate copolymerization resin, vinyl chloride-vinyl ether copolymerization resin, Vinyl chloride-maleate copolymerization resin, vinyl chloride-acrylic-acid copolymerization resin, Vinyl chloride-methacrylic-acid copolymerization resin, vinyl chloride-acrylic ester copolymerization resin, The resin more than a kind chosen from vinyl chloride-methacrylic ester copolymerization resin, vinyl chloride-urethane copolymerization resin, etc. can be used. As the above-mentioned IREFIN system resin Polyethylene, polypropylene, ethylene-vinyl acetate copolymerization resin, Ethylene-ethyl acrylate copolymerization resin, ethylene-methyl acrylate copolymerization resin, The resin more than a kind chosen from ethylene-methyl methacrylate copolymerization resin, ethylene-methacrylic-acid copolymerization resin, ethylene-acrylic-acid copolymerization resin, ethylene-propylene copolymerization resin, etc. can be used.
[0013] Moreover, it can replace with the above-mentioned synthetic resin, for example, nature or synthetic rubber, thermoplastic elastomer (TPE), etc., such as natural rubber, polyisoprene rubber, butadiene rubber, a styrene rubber, isobutylene isoprene rubber, ethylene-propylene rubber, ethylene-vinyl acetate rubber, chloroprene rubber, chlorosulfonated polyethylene, chlorinated polyethylene, epichlorohydrin rubber, acrylic rubber, polyurethane rubber, and silicone rubber, can be used.
[0014] To synthetic resin, above-mentioned rubber, or above-mentioned thermoplastic elastomer (henceforth "synthetic resin"), additives usually used, such as a plasticizer, a stabilizer, lubricant, a foaming agent, an inflating agent, an antistatic agent, conductive powder, a conductive staple fiber, a deodorant, an antifungal agent, an antimicrobial agent, various bulking agents, an ultraviolet ray absorbent, an anti-oxidant, an antioxidant, a softener, a thickener, a viscosity depressant, a diluent, a secondary plasticizer, various surfactants, water repellent, an oil repellent agent, a cross linking agent, a curing agent, and a coloring agent, can be added if needed.
[0015] The synthetic-resin constituent which consists of various additives added if needed [above / synthetic resin and if needed] It fabricates with well-known means, such as the same approach as usual, for example, the calender method, and an extrusion method, in the shape of a sheet. The approach of carrying out a laminating and synthetic-resin constituents, such as a base material, if needed in the case of liquefied objects, such as a paste and an emulsion A doctor knife coating machine, a roll coater, a gravure printer, a rotary screen printer, After applying with means, such as a curtain flow coater, it considers as an above-mentioned synthetic-resin layer or an above-mentioned synthetic-resin sheet by the approach of heating-gelling or desiccation solidifying and forming a synthetic-resin layer etc.
[0016] Especially the thickness of a sheet-like base material is not limited and is suitably selected by the application. For example, in the case of mounting material [the interior material Sagitta seat mounting material of the for / at the case of about 0.1-3.0mm and flooring / about 0.5-10mm and for vehicles by the case of a wallplate or head-lining material, or] for furniture, it is about 0.3-5.0mm.
[0017] The fine particles which have the photocatalyst function to make it adhere to the front face of the above-mentioned sheet-like base material It is the oxide semiconductor which has the optical activity of extent which can generate active oxygen. Specifically titanium oxide, BaTiO3, SrTiO3, CaTiO3, ZnO, SiC, GaP and CdS, CdSe, MoS3, SnO2, WO3, Fe 2O3, Bi 2O3, and V2 O5 etc. -- although it can be used, it is titanium oxide especially preferably. Of course, the fine particles which have these photocatalyst functions may be used independently, and two or more sorts can also be mixed and used for them. This titanium oxide of the anatase mold titanium oxide which has cheap and high activity especially is desirable although hydroxylation titanium, a titanium oxide hydrate, etc. are included other than titanium oxide, such as anatase mold titanium oxide, a rutile type titanium dioxide, BURUKKAITO mold titanium oxide, amorphism titanium oxide, metatitanic acid, and an alt.titanic acid. Moreover, in order to raise a photocatalyst function further, a front face may be made to support metallic oxides, such as metals, such as platinum, gold, silver, copper, palladium, a rhodium, and a ruthenium, and

ruthenium oxide, nickel oxide. In order to raise a photocatalyst function, as for the fine particles which have the above-mentioned photocatalyst function, it is desirable to use what mixed the matter of others [**** / corn] and was made into porosity.

[0018] What is necessary is not to be limited and just to select suitably according to a sewage sprinkling etc. especially about the particle size of the fine particles which have the above-mentioned photocatalyst function. for example, using what was made to condense mechanically and was made into the particle size of 40 micrometers or more, since fine-particles transport properties are required when sprinkling the above-mentioned fine particles by the powder spray -- things are desirable.

[0019] The fine particles which have the above-mentioned photocatalyst function may make itself adhere to a sheet-like base material, and may make the thing which made the proper fine-particles front face support the fine particles which have a photocatalyst function adhere to a sheet-like base material. Moreover, what mixed the proper fine particles of the other coloring or not coloring may be made to adhere to the fine particles which have the above-mentioned photocatalyst function on a sheet-like base material front face.

[0020] As an approach of making the fine particles which have a photocatalyst function adhering to the above-mentioned sheet-like base material front face Fine particles are sprinkled, before it applies well-known liquid glue to the whole surface or a part and these adhesives solidify. The approach of solidifying these adhesives and carrying out the fixing unification of the fine particles after removing excessive fine particles, After the synthetic-resin layer of the near front face to which it is going to make the fine particles of a sheet-like base material adhere applies liquefied objects, such as a paste and an emulsion, In forming by the approach of heating-gelling or desiccation solidifying Although it is also possible to adopt the approach of solidifying liquefied objects, such as a paste and an emulsion, and carrying out the fixing unification of the fine particles after sprinkling fine particles and removing excessive fine particles before heating-gelling or desiccation solidifying liquefied objects, such as this paste, emulsion, etc. As described above, since the fine particles which have a photocatalyst function are what disassembles the organic substance according to a photocatalyst operation, when usual liquid glue and synthetic resin are used, they have the concern in which the part which the fine particles which have a photocatalyst function touch deteriorates. Of course, if it compares with what mixed the fine particles which have a photocatalyst function in the synthetic-resin layer, although degradation of synthetic resin is inhibited, it is unsuitable for the application used especially over a long period of time. Therefore, the layer and concrete target which consist of resin which chooses and uses the adhesives which cannot deteriorate easily due to a photocatalyst operation preferably as an ornament sheet of this invention, or cannot deteriorate easily due to a photocatalyst operation are made to adhere to a sheet-like base material front face through a fluororesin layer.

[0021] As fluororesin which forms the above-mentioned fluororesin layer, polytetrafluoroethylene and tetrafluoroethylene-6 fluoride [propylene] copolymerization resin, Pori 3 fluoride-salt-ized ethylene, and tetrafluoroethylene-ethylene copolymerization resin or such mixture are mentioned. Moreover, in order to raise an adhesive property with a sheet-like base material, acrylic resin etc. may be mixed to these fluororesin.

[0022] In order to make the fine particles which have a photocatalyst function through a fluororesin layer as mentioned above adhere to a sheet-like base material, it is desirable to use what water etc. was made to distribute fluororesin and was made liquefied. That is, after sprinkling the above-mentioned fine particles and removing excessive fine particles before it applies the liquefied object containing fluororesin to the front face of a sheet-like base material and this liquefied object solidifies, this liquefied object is solidified and the fixing unification of the fine particles is carried out. In addition, it precedes applying the liquefied object containing the above-mentioned fluororesin to the front face of a sheet-like base material, and priming etc. can also be performed to a sheet-like base material.

[0023] In the liquefied object containing the above-mentioned fluororesin, in order to raise an adhesive property with a sheet-like base material, the vinyl chloride system resin for a paste, acrylic resin, etc. may be added. As for the addition of this vinyl chloride system resin for a

paste, acrylic resin, etc., it is desirable to consider as 1 - 30 weight section extent to the solid content 100 weight section of the liquefied object containing fluororesin. Moreover, in the liquefied object containing the above-mentioned fluororesin, various additives, such as inorganic bulking agents, such as flattings, such as a defoaming agent, a thickener, a silica, and an alumina, and a calcium carbonate, pH regulator (neutralizer), and a desiccation retarder, can also be added if needed.

[0024] The above-mentioned fluororesin layer can also be made not only into the thing of a monolayer but into two or more layers. For example, adhesion of fine particles can also be strengthened more by applying to the front face of a sheet-like base material the liquefied object which contains fluororesin on the front face of a sheet-like base material, sprinkling the above-mentioned fine particles, carrying out fixing unification, before this liquefied object solidifies, and making extent in which fine particles are not buried completely apply and solidify the liquefied object which contains fluororesin further after that. Moreover, the fluororesin film (in order to raise an adhesive property, what mixed acrylic resin etc. to fluororesin, and the thing which carried out the laminating of the acrylic resin layer to one side are included) is previously laminated on the sheet-like base material front face, the liquefied object which contains fluororesin on that front face is applied to the front face of a sheet-like base material, before this liquefied object solidifies, the above-mentioned fine particles can be sprinkled and fixing unification is carried out.

[0025] As mentioned above, after applying the liquefied object containing fluororesin etc. to the front face of a sheet-like base material, if it is the approach usually used as a fine-particles sewage sprinkling in the case of sprinkling the fine particles which have a photocatalyst function, even if it is which approach, it can apply. Specifically, the approach of sprinkling with spraying machines, such as a vibrating feeder, a scattering machine, and a powder spray, is mentioned. Moreover, if it is the approach usually used and is also about a means to remove excessive fine particles at this time, even if it will be which approach, it can apply. How to carry out suction removal of the fine particles which have not specifically adhered to the liquefied object containing fluororesin etc. as it is, With a vibration roller, a batting roller, other proper shakers, etc. from the rear-face side (namely, field of the side which is not sprinkling fine particles) of a sheet-like base material After turning over the approach and sheet-like base material which carry out suction removal of the fine particles which have not adhered to the liquefied object containing fluororesin etc., giving vibration of an abbreviation perpendicular direction to a sheet-like base material, vibration is given from a rear-face side and the approach of shaking off the fine particles which have not adhered to the liquefied object containing fluororesin etc. is mentioned.

[0026] Although the fine particles which have a photocatalyst function may be made to adhere all over a sheet-like base material, if it is made to adhere to the whole surface, a feeling of a rough deposit will be strong, and only a thing deficient in change also in design will be obtained. Therefore, if it is in the ornament sheet of this invention, it is desirable to make the fine particles which have a photocatalyst function adhere in the shape of [desired] a pattern. If the adhesion area of fine particles is too small at this time, since desired effectiveness will not be acquired, it is desirable to make it fine particles adhere to 10% or more of sheet-like base material all surface area at least. That is, when applying the liquefied object containing fluororesin etc., it is desirable to apply this liquefied object to 10% or more of sheet-like base material all surface area.

[0027] After making the fine particles which have a photocatalyst function to fluororesin layer superiors as mentioned above adhere, in order to make fine particles fix still more firmly if needed, you may compress with the heated embossing roll, the heated flat roll. Moreover, when irregularity is given to the sheet-like base material front face, the desorption of fine particles according the above-mentioned fine particles to **********, contact, etc. is controlled by only this crevice.

[0028] In addition, as long as it makes fine particles adhere on the fluororesin layer as an approach of making the fine particles which have a photocatalyst function adhering to the front face of a sheet-like base material which can carry out the fixing unification of the fine particles

for example, not only by the above but by thermal melting arrival, the fixing unification of the above-mentioned fine particles may be carried out by thermal melting arrival.
[0029]
[Embodiment of the Invention] Hereafter, the example of this invention is explained about the ornament sheet of this invention based on a drawing. In addition, here explains taking the case of a wallplate. Drawing 1 is the sectional view showing one example of the ornament sheet (wallplate) of this invention, and the sign 1 in drawing shows the fine particles in which a sheet-like base material and a sign 3 have a fluororesin layer, and, as for the ornament sheet (wallplate) of this invention, and a sign 2, a sign 4 has a photocatalyst function.
[0030] The vinyl chloride system resin layer 22 is formed in the front face of the lining paper 21 for wallpaper (flameproof paper), and, generally the sheet-like base material 2 of this example is called vinyl wall covering. This sheet-like base material 2 can be manufactured by the same approach as conventional vinyl wall covering, in this example, it adds various additives, such as a plasticizer, a stabilizer, and a coloring agent, to vinyl chloride system resin, such as a polyvinyl chloride, applies to the front face of the wallpaper lining paper 21 with a proper means what was made into the shape of a paste sol, carries out heating gelation, and forms and obtains a vinyl chloride system resin layer.
[0031] In addition, the vinyl chloride system resin layer 22 applies the vinyl chloride system resin paste sol which may be a foaming layer and contains a foaming agent and a thermal-expansion nature microcapsule in this case, and after it carries out heating gelation, it is made to foam. Moreover, although the vinyl chloride system resin layer 22 is formed in the lining paper 21 all front face for wallpaper in this example, a rotary screen printer etc. is used, the vinyl chloride system resin layer 22 is formed in the shape of a pattern, and you may be trying for a part of lining paper 21 front face for wallpaper to be exposed. Of course, it is also possible to carry out the vinyl chloride system resin layer 22 to more than a bilayer, for example, a first pass eye may be formed in the lining paper 21 all front face for wallpaper, and the second layer may be formed in the shape of a pattern on it.
[0032] The fine particles 4 which have a photocatalyst function through the fluororesin layer 3 formed in the shape of a pattern are made to adhere to the front face of the vinyl chloride system resin layer 22. The fluororesin layer 3 in this example Polytetrafluoroethylene, tetrafluoroethylene-6 fluoride [propylene] copolymerization resin, Pori 3 fluoride-salt-ized ethylene, tetrafluoroethylene-ethylene copolymerization resin, Or make water distribute the fluororesin which consists of such mixture etc., and it considers as a liquefied object. With proper means, such as a rotary screen printer, what added vinyl chloride system resin for a paste, acrylic resin, or the various above-mentioned additives for raising an adhesive property etc. if needed is applied to this in the shape of a pattern, and is formed in it. In addition, in this example, in order to raise an adhesive property with a vinyl chloride system resin layer, what mixed the vinyl chloride system resin for a paste is used into the dispersion liquid of the above-mentioned fluororesin.
[0033] In this example, as fine particles 4 which have a photocatalyst function, it is made to condense mechanically and the anatase mold titanium oxide which has the optical activity made into the particle size of 40 micrometers or more is used. These fine particles 4 are sprinkled with the powder spray machine, before these dispersion liquid solidify on the vinyl chloride system resin 22 which applied the dispersion liquid of the above-mentioned fluororesin.
[0034] After sprinkling fine particles 4 and carrying out suction removal of the excessive fine particles 4, the dispersion liquid of fluororesin are solidified. The ornament sheet 1 with which fine particles 4 were made to adhere to vinyl chloride system resin layer 22 front face as the fixing unification of the fine particles 4 adhering to the dispersion liquid of fluororesin carried out and shown in drawing 1 through the fluororesin layer 3 by this is obtained. In addition, the adhesion area of fine particles 4 was about 50% of the total surface area of the sheet-like base material 2 (vinyl chloride system resin layer 22).
[0035] Even if the obtained ornament sheet 1 has many properties, such as mildewproof [outstanding], antibacterial, and deodorization nature, and carried out the passage of time, the fall of many above-mentioned properties was not seen. Moreover, since the fine particles 4

which have a photocatalyst function were made to adhere through the fluororesin layer 3 which cannot deteriorate easily due to a photocatalyst operation and the vinyl chloride system resin layer 22 was not touched directly, discoloration degradation etc. was not seen by the vinyl chloride system resin layer 22.

[0036] Next, it replaced with the dispersion liquid of the above-mentioned fluororesin, and after applying the same vinyl chloride system resin paste sol as the vinyl chloride system resin layer 22 so that it may become the above and the same pattern on a vinyl chloride system resin layer front face, sprinkling the same fine particles as the above and removing excessive fine particles, heating gelation of the vinyl chloride system resin paste sol was carried out, and the ornament sheet was obtained. Although the fall of many above-mentioned properties was not seen even if the obtained ornament sheet has many properties, such as mildewproof [outstanding], antibacterial, and deodorization nature, and they carried out the passage of time, slight discoloration degradation was looked at by the part to which fine particles were made to adhere.

[0037] Furthermore, it replaced with the dispersion liquid of the above-mentioned fluororesin, and after applying what distributed the same fine particles as the above in the same vinyl chloride system resin paste sol as the vinyl chloride system resin layer 22 so that it may become the above and the same pattern on a vinyl chloride system resin layer front face, heating gelation was carried out and the ornament sheet was obtained. Many properties, such as mildewproof [outstanding], antibacterial, and deodorization nature, were extremely inferior in the obtained ornament sheet as compared with the ornament sheet of the above-mentioned example, and, moreover, remarkable discoloration degradation was seen.

[0038] Here, the experimental data about the deodorization effectiveness of the ornament sheet of this invention is shown. The wallplate shown in drawing 1 was cut out in 20cmx20cm magnitude, and was made into the sample, this sample was paid into the stinking bag made from the polyester whose volume is 3l., and 3l. of clarification air was put in and sealed in this. Subsequently, the solution of a trimethylamine was poured in into the stinking bag, and was sealed, and the trimethylamine was made to gasify so that the initial concentration of the trimethylamine in this stinking bag may be set to 100 ppm. The ultraviolet-rays weather meter which makes the light source the ultraviolet-rays carbon arc lamp which has a peak near 380nm for this stinking bag was used, it put gently on the bottom of a UV irradiation condition, and trimethylamine concentration was measured with the gas tech type gas detector every 15 minutes. However, into the stinking bag, the solution of the trimethylamine of an amount with which the trimethylamine concentration in the stinking bag when gasifying for every hour is set to 50 ppm was added, and the measuring time was carried out to to 3 hours. Moreover, in order to consider as the candidate for a comparison, as a deodorant, the nitrogen-containing sulfur compound was made to contain and the experiment with the same said of the wallplate to which the powder which has a photocatalyst function is not made to adhere was conducted. While these results are shown in Table 1, what graph-ized the result is shown as drawing 2 .

[0039]

[Table 1]

トリメチルアミン濃度（ｐｐｍ）

時間（分）	図１の壁材	比較対象
0	100	100
15	50	84
30	26	60
45	12	52
＊60	36	92
75	22	78
90	10	65
105	8	60
＊120	37	88
135	18	84
150	12	78
165	6	77
180	4	72

＊は、トリメチルアミン追加後測定

[0040] Even if, as for the wallplate of this invention which shows the wallplate for a comparison to drawing 1 although the deodorization (especially after 120-minute progress) effectiveness is falling with time amount progress, time amount passes, the fall of the deodorization effectiveness is not seen, but continues at a long period of time, and the deodorization effectiveness maintains it, so that clearly from the above result.
[0041] In addition, although the above has explained taking the case of a wallplate, even if it is cases, such as flooring, and interior material for vehicles, mounting material for furniture, the ornament sheet of this invention can be obtained by making the fine particles which have a photocatalyst function for the sheet manufactured by the usual approach through a fluororesin layer on a sheet-like base material and its front face preferably adhere. ****** -- even if it is the case of the ornament sheet which does not have the synthetic-resin layer on a front face, after attaching the irregularity by a desired printing pattern and desired embossing like the so-called paper wallpaper, the ornament sheet of this invention can be obtained by applying the liquefied object containing the above-mentioned fluororesin, and making the fine particles which have a photocatalyst function adhere.
[0042]
[Effect of the Invention] Since the ornament sheet of this invention makes the fine particles which have a photocatalyst function come to adhere to a sheet-like base material front face, many properties, such as mildewproof, antibacterial, and deodorization nature, maintain it semipermanently.
[0043] Moreover, when the fine particles which have the above-mentioned photocatalyst function are made to adhere to a sheet-like base material front face through the layer which cannot deteriorate easily due to a photocatalyst operation of fluororesin etc., discoloration degradation etc. does not arise on the front face of a sheet-like base material, but it is especially desirable.
[0044] Furthermore, there is an advantage that the ornament sheet which has the property which was excellent in the above can be obtained again only by adding the process of solidifying a fluororesin liquefied object after according to the manufacture approach of the ornament sheet of this invention applying a fluororesin liquefied object to the same manufacture approach of an ornament sheet as usual, sprinkling fine particles and removing surplus fine particles.

[Translation done.]

* NOTICES *

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the sectional view showing one example of the ornament sheet of this invention.

[Drawing 2] The experimental data in which the deodorization effectiveness in the ornament sheet of this invention is shown is graph-ized.
[Description of Notations]
1 Ornament Sheet
2 Sheet-like Base Material
3 Fluororesin Layer
4 Fine Particles Which Have Photocatalyst Function

[Translation done.]

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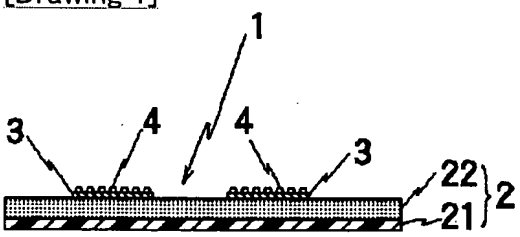
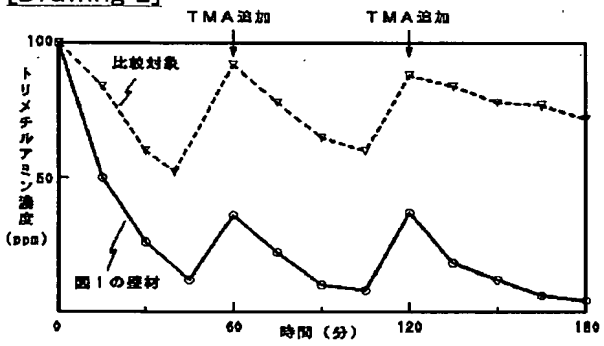
DRAWINGS

[Drawing 1]



[Drawing 2]



[Translation done.]